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## BEFORE THE ARIZONA CORPORATION

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Commissioner

PAUL NEWMAN

Commissioner

SANDRA D. KENNEDY

Commissioner

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Commissioner

Arizona Corporation Commission

DOCKETED

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IN THE MATTER OF THE ARIZONA  
CORPORATION COMMISSION'S SIXTH  
BIENNIAL TRANSMISSION  
ASSESSMENT, PURSUANT TO THE  
ADEQUACY OF EXISTING AND  
PLANNED TRANSMISSION FACILITIES  
IN A RELIABLE MANNER

DOCKET NO. E-00000D-09-0020

DECISION NO. 72031ORDER

Open Meeting  
November 22 and 23, 2010  
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. The Utilities Division Staff ("Staff") of the Arizona Corporation Commission ("Commission") and its consultant, KEMA, Inc. ("KEMA"), have completed the sixth biennial transmission assessment of Arizona's existing and planned transmission system. The Sixth Biennial Transmission Assessment, 2010-2019 ("BTA", or "assessment") was filed with the Commission on November 8, 2010. The BTA report was also posted on the Commission website at: <http://www.cc.state.az.us/divisions/utilities/electric/biennial.asp>.

2. The Sixth BTA report represents the professional opinion of Staff and its consultant, KEMA. The BTA is not an evaluation of individual transmission providers' facilities or quality of service. The BTA does not set Commission policy or approve any individual Arizona transmission provider's project(s). It assesses the adequacy of Arizona's existing and planned transmission system to reliably meet existing and future energy needs of the State.

1           3.       Staff held two workshops to gather stakeholders' input. The first workshop was  
2 held on June 3-4, 2010 and the second workshop on August 4, 2010. The comments and  
3 presentations submitted at the workshops, materials filed in the docket and subsequent  
4 correspondence have been incorporated into the BTA.

5           4.       The ten-year transmission plans and study reports filed by the participants with the  
6 Commission are necessary to evaluate the adequacy and reliability of the existing and planned  
7 transmission system. Staff was assisted by KEMA in analyzing the technical reports and  
8 documents filed by various organizations and individuals. The broad spectrum of information and  
9 technical reports assembled and reviewed address transmission assessments from a national,  
10 western interconnection, regional, state and local utility perspective.

11          5.       The Sixth BTA report addresses the adequacy and reliability of Arizona's existing  
12 and planned transmission system and offers conclusions and recommendations for the  
13 Commission's consideration and action. Staff concludes in its report that the Arizona utility  
14 industry has implemented steps to address the regional transmission planning issues, provide  
15 transmission enhancements and additions, develop solutions for transmission import constraints in  
16 various load pockets, support the growth of renewable resources in Arizona, and address local  
17 transmission system inadequacies.

18          6.       These conclusions are based upon the following findings:

- 19           a. As a result of current economic conditions, the statewide demand forecast for  
20 the 2010-2019 ten year planning period has shifted by about four years since the  
21 5<sup>th</sup> BTA (i.e., it will take four years longer to reach the 2008 demand forecast  
22 levels).
- 23           b. A total of 33 transmission projects have been delayed since the 5th BTA, with  
24 an average delay of roughly 4 years. In addition, 18 other transmission projects  
25 were cancelled. The combination of cancelled and delayed projects represents  
26 slightly more than one third of the projects filed in the 5<sup>th</sup> BTA in 2008. These  
27 delays and cancellations are consistent with the reduction in statewide demand  
28 forecast since the 5<sup>th</sup> BTA and do not appear to threaten the adequacy of the  
system or its ability to reliably serve load.
- c. Information on transmission reconductor projects, bulk power transformer  
replacements planned for the purpose of capacity upgrade, and reactive power  
compensation additions at 115 kV and above, if included in future ten-year plan  
filings, would assist the Commission in meeting its obligation "to biennially

1 make a determination of the adequacy and reliability of existing and planned  
2 transmission facilities in the state of Arizona”.

3 d. All Commission required studies related to adequacy and reliability have been  
4 filed. The following findings apply to the efficacy of the filed documents  
5 relative to the intent of the Commission ordered actions:

- 6 1) The Phoenix, Tucson and Yuma area Reliability Must-Run (“RMR”) studies  
7 for 2013 and 2019 were thorough and well documented. These RMR  
8 studies indicate that local RMR generation will not be dispatched out of  
9 merit order<sup>1</sup> for a significant number of hours or yield RMR costs sufficient  
10 to warrant advancing transmission improvements. The Mohave County  
11 2013 and 2018, and Santa Cruz County 2013 and 2019, RMR studies were  
12 also well documented. The Mohave County study showed no RMR  
13 requirement. However, Santa Cruz County RMR analysis for 2010 showed  
14 an RMR requirement of 24 MW. No Santa Cruz RMR requirement was  
15 found in 2013 or 2019.
- 16 2) The Commission’s concern in the 5th BTA regarding the need for broader  
17 stakeholder involvement in the Yuma Area and Mohave County RMR  
18 studies has been satisfactorily addressed through the RMR studies for 2013  
19 and 2019 filed in the Sixth BTA. Affected utilities and stakeholders  
20 participated in the Yuma Area and Mohave County RMR study.
- 21 3) The “Ten Year Snapshot Study” (previously referred to as the “N-1-1  
22 Study”) was performed by the Central Arizona Transmission System – Extra  
23 High Voltage (“CATS-EHV”) study group and represents a composite  
24 assessment of the statewide Arizona transmission system and the  
25 performance of the ten-year expansion plan under normal, single-  
26 contingency and certain overlapping contingencies. The Extreme  
27 Contingency Study was performed by Arizona Public Service Company  
28 (“APS”) and examines more severe contingency scenarios such as corridor  
outages. These studies demonstrate the ten-year plan is robust and should  
provide adequate and reliable service to Arizona.
- 4) The proposed definition of “continuity of service” described in the Cochise  
County Study Group’s (“CCSG”) 2009 technical study report, as filed by  
Southwest Transmission Cooperative, Inc. (“SWTC”) in January 2010, is  
appropriate for planning of the Cochise County system. The transmission  
plan identified in the CCSG 2009 report represents a reasonable set of  
transmission expansion projects to achieve the “continuity of service”  
objective in Cochise County. However, based on feedback received from  
CCSG participants during the Sixth BTA, possible changes in the Cochise  
County load forecast may allow delaying certain components of the plan of

<sup>1</sup> In a merit order dispatch the most economic mix of dispatchable generating units is selected to run each hour. However, RMR units may be run out of merit order in order to satisfy reliability needs on the grid.

service in the 2013-2018 time frame, discussed in the CCSG report, without jeopardizing Cochise County's continuity of service.

- 5) The Southeast Arizona Transmission System ("SATS") report and the Southwest Transmission Cooperative ("SWTC") ten-year plan have both identified overload issues on the Apache-Butterfield 230 kV line beginning in 2012. An upgrade of the line is being deferred to 2016. Therefore, interim mitigation measures will be needed in 2012-2015 in order to maintain system reliability. Furthermore, the study has identified numerous 230 kV and 115 kV bus voltage deviations that may be unacceptable, and states that further analysis is needed to address these issues. This analysis will be completed in 2011.
  - 6) Santa Cruz County remains exposed to extended customer outages during a contingency of the radial transmission line serving the county. Additional transmission line improvements outlined in the UNS Electric, Inc. ("UNSE") ten-year plan for Santa Cruz County will mitigate this exposure, but are contingent upon resolution of a long-standing federal permitting matter.
  - 7) The Central Arizona Transmission System – High Voltage ("CATS-HV") study of the planned 2019 Pinal County system assumed Southwest Public Power Resource's ("SPPR") "Three-Terminal" transmission plan (i.e., Pinal Central to ED5, ED5 to Test Track and ED5 to Marana 230 kV lines). However, at Sixth BTA Workshop 1 it was announced that SPPR has deferred plans for two of these line additions indefinitely. The impact of these deferrals on the results of the CATS-HV study of 2019 is unknown and cannot be determined from the filed studies.
  - 8) The 2009 utility filings, in response to the 5th BTA order for the utilities to identify their top three Renewable Transmission Projects ("RTPs"), are responsive to the Commission's order. An inclusive stakeholder process was developed and executed to identify the projects. In addition, the utilities are considering the impact of proposed utility-scale renewable projects as part of their normal planning processes.
- e. Arizona utilities have been extensively engaged in, and providing leadership to, Southwest Area Transmission Study Group ("SWAT") and WestConnect subregional planning processes. These utilities and other stakeholders have also participated and contributed valuable input during the Sixth BTA process.
  - f. The Federal Energy Regulatory Commission ("FERC") has implemented mandatory reliability standards and audits over the past two to three years, including transmission planning standards, as discussed in the body of the BTA report. It is still unclear to Staff how this should be recognized and integrated into the BTA process. Staff and KEMA have attempted to explore this question through data requests and stakeholder workshop discussion. Developing consensus on how to address these standards in the BTA process will take additional time and effort.

- g. Technical studies filed in the Sixth BTA indicate a generally robust study process for assessing transmission system performance (steady-state and transient) for the 2010-2019 planning period.
- h. Regional and subregional planning studies have effectively addressed the interconnected Extra High Voltage ("EHV") transmission that is critical to a functional interstate wholesale market. Studies indicate the existing and planned Arizona EHV system is adequate to support a robust wholesale market.
- i. Developing Arizona's vast renewable resource potential requires a coordinated and multi-faceted strategy involving stakeholders representing utility, government, economic, developer, environmental, and other interests. Decisions by the Commission and the actions taken by the Arizona utilities and regional stakeholders are important steps towards the state's goal of becoming a national and world leader in renewable energy development.
- j. Most of the transmission corridors identified in the utilities' initial RTP proposals to serve potential renewable generation are compatible with projects in the utilities' previously filed transmission plans. Furthermore, most of the RTPs identified by the utilities are actually advancements of projects already included in previous transmission plans.
- k. Because the selected RTP projects are ones that have been identified in earlier transmission plans they should contribute to reinforcing the transmission system beyond the specific needs of renewable generation projects. We would expect them to be effective in enabling delivery of renewable resources developed close to either the Phoenix-Tucson regions or the Palo Verde hub. As projects are developed farther from these areas, completely new transmission plans will likely need to be identified and developed.

7. Staff recommends that the Commission:

- a. Continue to support the use of the:
  - 1) "Guiding Principles for ACC Staff Determination of Electric System Adequacy and Reliability",
  - 2) North American Electric Reliability Corporation ("NERC") reliability standards, Western Electricity Coordinating Council ("WECC") system performance criteria and FERC enforcement policies regarding transmission system planning reliability standards, and
  - 3) Collaborative planning processes in Arizona and throughout the western region that facilitate competitive wholesale markets, and are consistent with FERC Order 890.
- b. Continue to support the policy that generation interconnections should be granted a Certificate of Environmental Compatibility by the Commission only when they meet regional and national reliability standards and the requirements of Commission decisions.

1 c. Accept the results of the following Commission ordered studies provided as part  
2 of the Sixth BTA filings:

- 3 1) Extreme contingency outage study for Arizona's major transmission  
4 corridors and substations, and the associated risks and consequences of  
5 such overlapping contingencies.  
6 2) "N-1-1" (Ten-Year Snapshot) study results documenting the  
7 performance of Arizona's statewide transmission system in 2019 for a  
8 comprehensive set of N-1 contingencies, each tested with the absence  
9 of nine different major planned transmission projects (N-1-1).  
10 3) RMR studies for Phoenix, Tucson, Yuma, Mohave County and Santa  
11 Cruz County.

12 d. Accept the definition of "continuity of service" following a transmission line  
13 outage as proposed in the Cochise County Study Group's 2009 technical study  
14 report filed by SWTC in January 2010, and accept the recommended  
15 transmission plan of service as shown in Section 4.2.1 of the Sixth BTA report  
16 in order to achieve this "continuity of service" objective in Cochise County.

17 e. Enter the following orders:

- 18 1) SWTC, APS, Tucson Electric Power Company ("TEP") and Sulphur  
19 Springs Valley Electric Cooperative ("SSVEC") shall jointly complete  
20 additional actions and file specified information related to the Cochise  
21 County Study Group plan of service with the Commission as follows:  
22 i) By June 30, 2011, identify the components of the plan in a  
23 facilities report that provide the most benefit to customer  
24 reliability and can be implemented in the shortest timeframe, and  
25 file a progress report with the Commission that includes planned  
26 in-service dates for all relevant elements of the plan reflecting  
27 these priorities.  
28 ii) By September 30, 2011, submit a progress report including in-  
service dates for the components of the plan of service identified  
in the June 30, 2011, facility study. This schedule shall reflect the  
most recent load forecast.  
iii) By December 31, 2011, substantially complete contractual  
negotiations with affected parties over cost responsibility,  
wheeling arrangements, Engineering, Procurement and  
Construction ("EPC"), operations and maintenance, etc.  
(described as pending items in the CCSG 2009 report), and file a  
draft memorandum of understanding among affected parties  
addressing these items with the Commission.

- 1                   iv) By June 30, 2012, file a progress report with the Commission  
2                   including an executed memorandum of understanding between the  
3                   parties that includes planned in-service dates for all remaining  
4                   elements of the plan in the 2013-2018 timeframe. If applicable, in-  
5                   service dates beyond 2013-2018 may be proposed for later stages  
6                   of the plan if justified by documented changes in the load  
7                   forecast<sup>2</sup>.
- 8                   v) By December 31, 2012, seek to obtain all required approvals and  
9                   permits needed to complete remaining components of the plan,  
10                  and file a progress report on plan implementation with the  
11                  Commission. If any related approvals or permits from appropriate  
12                  regulatory agencies are still pending at that time, the progress  
13                  report shall identify a clear action plan and proposed schedule to  
14                  obtain such approvals.
- 15                  2) The jurisdictional utilities shall report relevant findings in future BTAs  
16                  regarding compliance with transmission planning standards (e.g., TPL-  
17                  001 through TPL-004) from NERC/WECC reliability audits that have  
18                  been finalized and filed with FERC.
- 19                  3) SWTC shall determine if an engineering "re-rating" of the Apache-  
20                  Butterfield 230 kV line as proposed in the Sixth BTA filings would be  
21                  an acceptable measure until the line is upgraded in 2016, and to file  
22                  the results of this assessment by January 31, 2011.
- 23                  4) APS, SWTC and TEP shall conduct additional analysis of potential  
24                  230 kV and 138 kV voltage deviations in Southeastern Arizona as  
25                  noted in the 2009 SATS report and file an update based on the 2010  
26                  SATS by February 28, 2011, and shall finalize mitigation plans if  
27                  needed for this voltage concern in ten-year plan filing(s) for the 7th  
28                  BTA by January 31, 2012.
- 5) UNSE shall update its assessment of long term alternatives for Santa  
                  Cruz County continuity of service, as part of UNSE's 2012-2021 ten-  
                  year planning studies, and file a report on the updated assessment in  
                  the 7th BTA in 2012. Furthermore, if any approvals or permits from  
                  federal agencies related to the Gateway Transmission Project are still  
                  pending at that time, Staff recommends that the Commission require  
                  the 7<sup>th</sup> BTA filings to include a clear action plan and proposed  
                  schedule to obtain such approvals.
- 6) Jurisdictional utilities shall continue to perform RMR studies in  
                  accordance with the methodology set forth in Appendix C to this Sixth  
                  BTA, and shall file such studies with ten-year plans for inclusion in  
                  future BTA reports.

<sup>2</sup> Load forecast updates may include the impacts of energy efficiency improvements, demand side management, demand response, distributed generation and other applicable factors.

7) Jurisdictional utilities shall include planned transmission reconductor projects, transformer capacity upgrade projects and reactive power compensation facility additions at 115 kV and above in future BTA ten-year plan filings.

8. In addition, we believe that the jurisdictional utilities should include the effects of distributed renewable generation and energy efficiency programs on future transmission needs in future ten-year plan filings, beginning in January 2011, and that these effects be discussed in future BTAs.

9. The Commission is mindful of the interest in Arizona's abundant supply of renewable energy, and the potential for these energy resources to be tapped by surrounding states to meet their RPS obligations. We would like the utilities to jointly conduct or procure a study, as well as a stakeholder workshop, to identify the barriers to and solutions for enhancing Arizona's ability to export renewable energy, including identifying specific transmission corridors that should be built out in order to accomplish this objective. The study and results of the workshop should be filed at the Commission no later than November 1, 2011, and shall be included as part of the 2012 BTA.

#### CONCLUSIONS OF LAW

1. According to A.R.S. § 40-360.02.A, "Every person contemplating construction of any transmission line within the state during any ten year period shall file a ten year plan with the Commission on or before January 31 of each year."

2. According to A.R.S. § 40-360.02.G, "The plans shall be reviewed biennially by the Commission and the Commission shall issue a written decision regarding the adequacy of the existing and planned transmission facilities in this state to meet the present and future energy needs of this state in a reliable manner."

3. The Commission, having reviewed the Sixth Biennial Transmission Assessment 2010-2019, concludes that the assessment complies with A.R.S. § 40-360.02.

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ORDER

IT IS THEREFORE ORDERED that the Sixth Biennial Transmission Assessment 2010-2019 is hereby issued as the Commission's biennial assessment in accordance with A.R.S. § 40-360.02, G.

IT IS FURTHER ORDERED that the jurisdictional utilities shall include the effects of distributed renewable generation and energy efficiency programs on future transmission needs in future ten-year plan filings, beginning in January 2011, and that these effects be discussed in future BTAs.

IT IS FURTHER ORDERED that the jurisdictional utilities shall jointly conduct or procure a study, as well as conduct a stakeholder workshop process in conjunction with the study, which identifies the barriers to and solutions for enhancing Arizona's ability to export renewable energy, including identifying specific transmission corridors that should be built out in order to accomplish this objective. The study and results of the workshop shall be filed at the Commission no later than November 1, 2011, and shall be included as part of the 2012 BTA.

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1 IT IS FURTHER ORDERED that Staff recommendations contained in Finding of Fact  
2 No. 7 are hereby adopted by the Commission.

3 IT IS FURTHER ORDERED that this Decision become effective immediately.

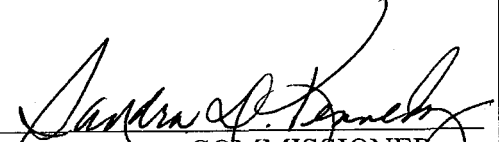
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5 **BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

6   
7 CHAIRMAN

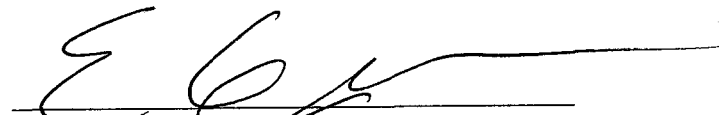
  
COMMISSIONER

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10 COMMISSIONER

  
COMMISSIONER

  
COMMISSIONER

11 IN WITNESS WHEREOF, I, ERNEST G. JOHNSON,  
12 Executive Director of the Arizona Corporation Commission,  
13 have hereunto, set my hand and caused the official seal of  
14 this Commission to be affixed at the Capitol, in the City of  
15 Phoenix, this 10th day of December, 2010.

16   
17 ERNEST G. JOHNSON  
18 EXECUTIVE DIRECTOR

19 DISSENT: \_\_\_\_\_

20 DISSENT: \_\_\_\_\_

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1 SERVICE LIST FOR: SIXTH BIENNIAL TRANSMISSION ASSESSMENT  
2 DOCKET NO. E-00000D-09-0020  
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